

Claims

What is claimed is:

- 1 1. An apparatus comprising:
 - 2 a solenoid lead;
 - 3 a thermocouple to provide a first current source in a first direction to the
 - 4 solenoid lead; and
 - 5 a sensor activated switch to switch current from a second current source
 - 6 to the solenoid lead in a second direction different from the first.

- 1 2. The apparatus of claim 1, further comprising:
 - 2 the sensor activated switch comprising a silicon controlled rectifier (SCR)
 - 3 to switch current from the second current source to the solenoid
 - 4 lead, the SCR selected so that the current from the second current
 - 5 source heats the SCR sufficiently to break a thermal fuse coupled
 - 6 to the SCR.

- 1 3. The apparatus claim 1, further comprising:
 - 2 a fusible link coupling the solenoid lead with the thermocouple and
 - 3 coupling the solenoid lead with the second current source.

- 1 4. The apparatus of claim 3, further comprising:
 - 2 the fusible link comprising a thermal fuse thermally coupled to an element
 - 3 of the sensor activated switch.

- 1 5. The apparatus of claim 1, further comprising:
 - 2 a sensor comprising a sensor impedance varying according to a presence
 - 3 of vapor, the sensor impedance electrically located to control the
 - 4 sensor activated switch.

- 1 6. The apparatus of claim 2, further comprising:
 - 2 the second current source coupled to a gate of the SCR via a transistor.

- 1 7. A water heater comprising:
 - 2 a gas valve;
 - 3 a solenoid to operate the gas valve;
 - 4 a thermocouple that, when heated by a pilot light, provides a first current
 - 5 source to maintain the gas valve in an open position; and
 - 6 a sensor activated switch to switch current from a second current source
 - 7 to the solenoid to move the gas valve to a closed position.

- 1 8. The water heater of claim 7, further comprising:
 - 2 a fusible link coupling the solenoid with the thermocouple and coupling
 - 3 the solenoid with the second current source.

- 1 9. The water heater of claim 8, further comprising:
 - 2 the fusible link comprising a thermal fuse thermally coupled to an element
 - 3 of the sensor activated switch.

- 1 10. The water heater of claim 7, further comprising:
 - 2 the sensor activated switch comprising an SCR to switch current from the
 - 3 second current source to the solenoid, the SCR selected such that
 - 4 the current from the second current source heats the SCR
 - 5 sufficiently to break a thermal fuse thermally coupled to the SCR.

- 1 11. The water heater of claim 10, further comprising:
 - 2 the second current source coupled to a gate of the SCR via a transistor.

- 1 12. The water heater of claim 7, further comprising:
 - 2 a sensor comprising a sensor impedance that varies according to a
 - 3 presence of vapor, the sensor impedance electrically located to
 - 4 control the sensor activated switch.